

AMENDMENTS TO THE CLAIMS

Please amend claims 1, 3, 9, and 19, cancel claims 2, 4, 12, 13, 18, 25-28, and add claims 35-44 such that the status of the claims is as follows:

1. (Currently amended) A magnetic write head comprising:

a main pole for writing data to a magnetic medium;

a conductive coil positioned adjacent the main pole, the conductive coil being insulated from the main pole and producing a magnetic field in response to a write current flowing through the conductive coil; [[and]]

means for directing the magnetic field produced by the conductive coil toward the main pole and minimizing the magnetic field in directions other than toward the main pole;

a return pole, wherein at least a portion of the conductive coil is positioned between the main pole and the return pole; and

a magnetic shield positioned between the main pole and the return pole.

2. (Canceled)

3. (Currently amended) The magnetic write head of claim 1 [[2]], wherein the conductive coil has a top side, a bottom side, a first side, and a second side, and wherein the means for directing the magnetic field comprises a ferromagnetic cladding on at least the bottom side of the conductive coil adjacent the return pole.

4. (Canceled)

5. (Original) The magnetic write head of claim 1, wherein the conductive coil has a top side, a bottom side, a first side, and a second side, and wherein the means for directing the magnetic field

comprises a cladding covering the bottom side, the first side, and the second side of the conductive coil.

6. (Original) The magnetic write head of claim 5, wherein the cladding is a magnetically soft alloy.

7. (Original) The magnetic write head of claim 6, wherein the magnetically soft alloy is selected from the group consisting of $\text{Ni}_{80}\text{Fe}_{20}$, CoZrTa , CoZrNb , CoNiFe , FeAlN , and NiFeCu .

8. (Original) The magnetic write head of claim 5, wherein the cladding has an induced anisotropy.

9. (Currently amended) A magnetic write head comprising:

a main pole for writing data to a magnetic medium;

a return pole for writing data to a magnetic medium;

a conductive coil having a top side, a bottom side, a first side, and a second side,
wherein at least a portion of the conductive coil is positioned between the
main pole and the return pole, the conductive coil being insulated from the
main pole, the conductive coil producing a magnetic field in response to a
write current flowing through the conductive coil;

a ferromagnetic cladding adjacent to at least one of the top side, bottom side, first
side, and second side of the conductive coil to direct the magnetic field
produced by the conductive coil toward the main pole and away from the
return pole; and

a magnetic shield positioned between the main pole and the return pole.

10. (Original) The magnetic write head of claim 9, wherein the ferromagnetic cladding has an induced anisotropy.

11. (Original) The magnetic write head of claim 9, wherein the ferromagnetic cladding is in direct contact with the conductive coil.

12-13. (Canceled)

14. (Original) The magnetic write head of claim 9, wherein the ferromagnetic cladding is a magnetically soft alloy.

15. (Original) The magnetic write head of claim 14, wherein the magnetically soft alloy is selected from the group consisting of $\text{Ni}_{80}\text{Fe}_{20}$, CoZrTa , CoZrNb , CoNiFe , FeAlN , and NiFeCu .

16. (Original) The magnetic write head of claim 9, wherein the ferromagnetic cladding is adjacent to at least two sides of the conductive coil.

17. (Original) The magnetic write head of claim 9, wherein the ferromagnetic cladding is adjacent to at least three sides of the conductive coil.

18. (Canceled)

19. (Currently amended) A magnetic write head comprising:

a first pole for writing data to a magnetic medium;

a second pole spaced apart from the first pole; and

a clad coil having a portion positioned between the first pole and the second pole, the clad coil comprising a ferromagnetic material adjacent to at least a portion of a non-magnetic electrical conductor to direct a magnetic field produced by a current flow through the conductor toward the first pole and away from the second pole; wherein the non-magnetic electrical conductor has a top side, a bottom side, a first side, and a second side, and wherein the ferromagnetic

material is a cladding insulated from and adjacent to the bottom side, first side, and second side of the non-magnetic electrical conductor, wherein the top side of the non-magnetic electrical conductor is exposed to the first pole.

20. (Original) The magnetic write head of claim 19, wherein the ferromagnetic material has an induced anisotropy.

21. (Original) The magnetic write head of claim 19, wherein the ferromagnetic material is a magnetically soft alloy.

22. (Original) The magnetic write head of claim 21, wherein the magnetically soft alloy is selected from the group consisting of $\text{Ni}_{80}\text{Fe}_{20}$, CoZrTa, CoZrNb, CoNiFe, FeAlN, and NiFeCu.

23. (Original) The magnetic write head of claim 19, wherein the non-magnetic electrical conductor has a top side, a bottom side, a first side, and a second side, and wherein the ferromagnetic material is adjacent to at least two sides of the non-magnetic electrically conductive material exposing the top side of the non-magnetic electrical conductor to the first pole.

24. (Original) The magnetic write head of claim 19, wherein the non-magnetic electrical conductor has a top side, a bottom side, a first side, and a second side, and wherein the ferromagnetic material is adjacent to the bottom side, first side, and second side of the non-magnetic electrical conductor exposing the top side of the non-magnetic electrical conductor to the first pole.

25-28. (Canceled)

29. (Original) The magnetic write head of claim 19, wherein the clad coil is positioned adjacent an air bearing surface.

30. (Original) The magnetic write head of claim 19, wherein the clad coil is removed from the air bearing surface.

31. (Original) The magnetic write head of claim 19, wherein the ferromagnetic material saturates when a writing current is supplied through the clad coil.

32. (Original) The magnetic write head of claim 19, wherein the ferromagnetic material does not saturate when a writing current is supplied through the clad coil.

33. (Original) The magnetic write head of claim 19, further comprising:
a bias layer positioned adjacent the ferromagnetic material.

34. (Original) The magnetic write head of claim 33, wherein the bias layer is an antiferromagnetic exchange layer.

35. (New) A magnetic write head comprising:
a return pole
a conductive coil having a top side, a bottom side, a first side, and a second side,
wherein the conductive coil is insulated from the main pole; and
a ferromagnetic cladding adjacent to at least one of the top side, bottom side, first side, and second side of the conductive coil, wherein the ferromagnetic cladding is insulated from and adjacent to the conductive coil, wherein the top side of the conductive coil is exposed to the main pole.

36. (New) The magnetic write head of claim 35, further comprising:
a return pole, wherein at least a portion of the conductive coil is positioned between the main pole and the return pole.

37. (New) The magnetic write head of claim 35, wherein the ferromagnetic cladding is adjacent to at least three sides of the conductive coil.

38. (New) A magnetic write head comprising:
a first pole for writing data to a magnetic medium;
a second pole spaced apart from the first pole;
a via connecting the first pole and the second pole; and
a clad coil having a portion positioned between the first pole and the second pole, the clad coil comprising a ferromagnetic material adjacent to at least a portion of a non-magnetic electrical conductor to direct a magnetic field produced by a current flow through the conductor toward the first pole and away from the second pole, wherein:
the non-magnetic electrical conductor has a top side, a bottom side, a first side, and a second side;
the clad coil includes a cladding of the ferromagnetic material on at least the bottom side of the non-magnetic electrical conductor facing the second pole; and
the clad coil circles around the via and includes a cladding of the ferromagnetic material adjacent at least one side of the non-magnetic electrical conductor of a portion of the clad coil that is not positioned between the first and second poles.

39. (New) The magnetic write head of claim 38, wherein the at least one surface of the non-magnetic electrical conductor of a portion of the clad coil that is not positioned between the first and second poles is a surface facing away from the first pole.

40. (New) The magnetic write head of claim 38, wherein the portion of the clad coil that is not positioned between the first and second poles includes cladding on all sides.

41. (New) A magnetic write head comprising:
a main pole;
a conductive coil forming at least one loop around the main pole and having a first surface that faces the main pole; and
a magnetic cladding adjacent to at least a second side of the conductive coil that does not face the main pole.

42. (New) The magnetic head of claim 41, wherein the magnetic cladding covers all surfaces of the conductive coil other than the first surface.

43. (New) The magnetic head of claim 41, wherein the conductive coil forms multiple loops around the main pole.

44. (New) The magnetic head of claim 41, and further comprising:
a return pole spaced from the main pole and outside the at least one loop of the conductive coil.